

## REPORT ON MACHINERY.

Nuc. No. 53742

No. 23460

Port of *Sunderland*Received at London Office **WED. 30 OCT 1907**No. in Survey held at *Sunderland*  
Reg. Book. *S. S. Saxon*  
on theDate, first Survey *11<sup>th</sup> June 1907* Last Survey *30 Sept 1907*  
(Number of Visits *25*.)

Master *H. Shields* Built at *H. Shields* By whom built *Smith's Dock Co Ltd* Tons { Gross *239*  
Net *74*  
When built *1907*

Engines made at *Sunderland* By whom made *Messrs Mac Coll & Pollock* when made *1907*

Boilers made at *Sunderland* By whom made *Messrs Mac Coll & Pollock* when made *1907*

Registered Horse Power *78* Owners *Neale Bros* Port belonging to *Mixed*

Nom. Horse Power as per Section 28 *78* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *no*

ENGINES, &c.—Description of Engines *Inverted triple expansion* No. of Cylinders *3* No. of Cranks *3*

Dia. of Cylinders *12½, 20, 34* Length of Stroke *24* Revs. per minute *110* Dia. of Screw shaft as per rule *7.25* Material of screw shaft *Steel*  
as fitted *7.9*

Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes* Is the after end of the liner made water tight in the propeller boss *Yes* If the liner is in more than one length are the joints burned *✓* If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If two liners are fitted, is the shaft lapped or protected between the liners *✓* Length of stern bush *2' 6"*

Dia. of Tunnel shaft as per rule *✓* Dia. of Crank shaft journals as per rule *6-6.2* Dia. of Crank pin *6 7/8* Size of Crank webs *11 x 4½* Dia. of thrust shaft under collars *6 7/8* Dia. of screw *9.3* Pitch of Screw *12.0* No. of Blades *4* State whether moveable *no* Total surface *344*

No. of Feed pumps *one* Diameter of ditto *2¼* Stroke *12* Can one be overhauled while the other is at work *✓*

No. of Bilge pumps *one* Diameter of ditto *2¼* Stroke *12* Can one be overhauled while the other is at work *✓*

No. of Donkey Engines *2* Sizes of Pumps *3½ x 6 x 6 & 2 x 4 x 4* No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room *one of 2" & injector of 2½"* In Holds, &c. *1 of 2" to sludge tank*

No. of Bilge Injections *1* sizes *3"* Connected to condenser, or to circulating pump *pump* Is a separate Donkey Suction fitted in Engine room & size *2"*

Are all the bilge suction pipes fitted with roses *Yes* Are the roses in Engine room always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *✓*

Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *both*

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *Yes* Are the Discharge Pipes above or below the deep water line *above*

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel *Yes* Are the Blow Off Cocks fitted with a spigot and brass covering plate *Yes*

What pipes are carried through the bunkers *suction to sludge tank* How are they protected *wood casing*

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *Yes*

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *Yes*

Dates of examination of completion of fitting of Sea Connections *14.9.07* of Stern Tube *23.9.07* Screw shaft and Propeller *23.9.07*  
*17.10.07*

Is the Screw Shaft Tunnel watertight *✓* Is it fitted with a watertight door *✓* worked from *✓*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *Messrs W. Beardmore & Co*

Total Heating Surface of Boilers *1423* Is Forced Draft fitted *no* No. and Description of Boilers *one S.E. Cylindrical Mult<sup>2</sup>*

Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *13.9.07* No. of Certificate *2654*

Can each boiler be worked separately *✓* Area of fire grate in each boiler *38* No. and Description of Safety Valves to each boiler *2 spring* Area of each valve *3.98* Pressure to which they are adjusted *185 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *10"* Mean dia. of boilers *12' 6"* Length *10' 6"* Material of shell plates *steel*

Thickness *1/32* Range of tensile strength *28/32* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *d.2.lap.*

long. seams *L x d.2.5* Diameter of rivet holes in long. seams *1½"* Pitch of rivets *7 3/4"* Lap of plates or width of butt straps *15 3/4"*

Per centages of strength of longitudinal joint rivets *92.5* Working pressure of shell by rules *180 lbs* Size of manhole in shell *16 x 12"*

Size of compensating ring *7½ x 1½"* No. and Description of Furnaces in each boiler *2-plain* Material *steel* Outside diameter *43"*

Length of plain part top *75"* Thickness of plates crown *49/64* Description of longitudinal joint *weld* No. of strengthening rings *1 ring*

Working pressure of furnace by the rules *180 lbs* Combustion chamber plates: Material *steel* Thickness: Sides *1/16"* Back *1/16"* Top *1/16"* Bottom *7/8"*

Pitch of stays to ditto: Sides *10 x 9"* Back *9½ x 9½"* Top *9½ x 9½"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *180.5 lbs*

Material of stays *steel* Diameter at smallest part *1.79* Area supported by each stay *90* Working pressure by rules *180 lbs* End plates in steam space: Material *steel* Thickness *1/4"* Pitch of stays *20½ x 18½"* How are stays secured *d.u.w* Working pressure by rules *181.1 lbs* Material of stays *steel*

Diameter at smallest part *7.24* Area supported by each stay *385* Working pressure by rules *181.6 lbs* Material of Front plates at bottom *steel*

Thickness *13/16"* Material of Lower back plate *steel* Thickness *13/16"* Greatest pitch of stays *12 1/4"* Working pressure of plate by rules *191.7 lbs*

Diameter of tubes *3 3/4"* Pitch of tubes *4½ x 4½"* Material of tube plates *steel* Thickness: Front *13/16"* Back *13/16"* Mean pitch of stays *9 x 18½"*

Pitch across wide water spaces *14 1/4"* Working pressures by rules *210 lbs* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *9½ x 12"* Length as per rule *31 3/8"* Distance apart *9½"* Number and pitch of stays in each *2 - 8 5/8"*

Working pressure by rules *182.3 lbs* Superheater or Steam chest; how connected to boiler *✓* Can the superheater be shut off and the boiler worked separately *✓* Diameter *✓* Length *✓* Thickness of shell plates *✓* Material *✓* Description of longitudinal joint *✓* Diam. of rivet holes *✓* Pitch of rivets *✓* Working pressure of shell by rules *✓* Diameter of flue *✓* Material of flue plates *✓* Thickness *✓*

If stiffened with rings *✓* Distance between rings *✓* Working pressure by rules *✓* End plates: Thickness *✓* How stayed *✓*

Working pressure of end plates *✓* Area of safety valves to superheater *✓* Are they fitted with easing gear *✓*

W611-0069



# VERTICAL DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_

Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— 2 Top end, 2 bottom end, 2 Main bearing and one set of coupling bolts, 1 set of Air + Circulating pump Valves, 1 set of feed and bilge pump Valves, 1 Main + 1 Donkey feed check Valve, 1 propeller, Bolts and nuts assorted, and iron of size \_\_\_\_\_

The foregoing is a correct description,

W. COLL & POLLOCK, LTD.

Manufacturer.

*Hugo MacCall*  
Managing Director

Dates of Survey while building { During progress of work in shops - 07. June 11. 25. July 1. 12. 16. 18. 23. 30. Aug 1. 7. 12. 14. 17. 22. 28. Sept 2. 6. 12. 13. 17. 19. 23. 25. 27. 30.  
During erection on board vessel - Nov. 1907. Dec. 16. 17. Oct. 16. 17. 22.  
Total No. of visits 25

Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 23.8.07 Slides 12.8.07 Covers 12.8.07 Pistons 14.8.07 Rods 28.8.07  
Connecting rods 28.8.07 Crank shaft 12.8.07 Thrust shaft 22.8.07 Tunnel shafts ✓ Screw shaft 19.9.07 Propeller 6.9.07  
Stern tube 19.9.07 Steam pipes tested 25.9.07 Engine and boiler seatings 16.9.07 Engines holding down bolts 25.9.07  
Completion of pumping arrangements 30.9.07 Boilers fixed 25.9.07 Engines tried under steam 30.9.07  
Main boiler safety valves adjusted 30.9.07 Thickness of adjusting washers P. 3/8 bare; S. 1/2 bare  
Material of Crank shaft Steel Identification Mark on Do. H.C.H.P. Material of Thrust shaft Steel Identification Mark on Do. P.46.9.F.  
Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts Steel Identification Marks on Do. P.46.9.F.  
Material of Steam Pipes Copper Test pressure 400 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. The Machinery of this vessel has been constructed under special survey, the workmanship and materials used are both of good quality, the Engines have been tried under steam and worked satisfactorily

note It is stated that the vessel grounded on returning to the wharves from Sunderland after the machinery fitted on board - vessel dry-docked, several small pieces found broken off edges of propeller blades, under the circumstances as the propeller was thus slightly blunted a new propeller was fitted, and the Tail shaft (C.L.) + Crank shaft examined + found satisfactory - 17.10.07

We beg to recommend that this vessel is eligible in our opinion to have the record L.M.C. 10.07 in the Register Book

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 10.07

The amount of Entry Fee. £ 1 : : When applied for, 4.10.1907  
Special .. £ 11 : 14 :  
Donkey Boiler Fee .. £ : :  
Travelling Expenses (if any) £ : : When received, 30.10.07

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 1 NOV 1907

Assigned

+ LMB 1007



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Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)